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Contact

Melissa Weber, Director of Communications  
Phone: 320-589-6414, [weberm@morris.umn.edu](mailto:weberm@morris.umn.edu)

Jenna Ray, Editor/Writer  
Phone: 320-589-6068, [jrray@morris.umn.edu](mailto:jrray@morris.umn.edu)

**Margaret Schmitz '98 participates in NASA teacher professional development program**

*Summary: The summer internship at NASA Ames focused on aeronautics modeling and simulation tools that translate to hands-on classroom experiences.*

(August 23, 2011)-When Margaret Schmitz '98 and her colleagues learned about [NASA's Simulation-Based Aerospace Engineering Teacher Professional Development Program](#) from the Minnesota Earth Science Teachers Association, they applied and then quickly adopted an impassive attitude. The team of four Willmar School District science teachers knew the program was competitive and decided not to stress over their chances of being accepted.

But there was no holding back on excitement when they learned that out of 200 applicants they were among the 32 select science, technology, engineering, and mathematics (STEM) middle and high school teachers chosen for two-week paid summer internships at a NASA facility. The program focuses on aeronautics modeling and simulation and provides STEM educators with the opportunity to experience cutting-edge technology, explore aerospace engineering concepts, and develop hands-on lessons that will engage and inspire their students. NASA stated that top-rated teams shared similar characteristics, including exhibiting team unity, providing concrete plans for leveraging their experience, specific examples of innovative classroom activities, and significant area business and academic support.

Schmitz, a geology major originally from Stillwater, teaches seventh through twelfth grade science at the Willmar Area Learning Center. Her team was nicely balanced, she says, comprising a high school teacher, two middle school teachers, and herself, an alternative teacher. Assigned to [NASA Ames Research Center](#) in Moffett Field, California, they interacted with other teams of math and science teachers from Illinois and Texas. "Ames conducts the critical R&D and develops the enabling technologies that make NASA missions possible," Schmitz notes. Highlights of their stay included extensive tours of the facility, observing the world's largest wind tunnel, and "pretending to fly a 747."

The workshops included two days of mentoring by NASA scientists and development of a lesson plan in the mentor's research area. Schmitz's team concentrated their work in the arc jet complex, the area that deals with the thermal protection systems used to keep the space shuttle, and future aircraft, from burning up on re-entry. Their NASA engineering mentors are currently designing the next generation of shuttles, focusing on further exploration of the moon and Mars missions. Prototypes are returning to the older pod configurations, Schmitz says. She also realized NASA's affect on domestic travel through its research on flight control and air traffic management, declaring "whenever you've flown, NASA has had a hand in it."

Besides accumulating personal learning experiences and new ideas for her classroom, Schmitz has become an advocate for NASA's other mission – getting more teachers and students involved in the many opportunities and resources they offer. She says she came away from the internship better equipped to convey the message to her students that America needs scientists and engineers and they can enter these fields in non-traditional ways. Her team, for example, met a poetry major who is now a NASA photographer. NASA's design and simulation-based engineering approach can appeal to computer and gaming enthusiasts, she suggests. Or, an auto mechanic can think beyond working on cars in a garage because NASA needs people with practical engineering skills. Her bottom line for students advises them not to be

intimidated by “science” or accept limits on what they can do.

But for Schmitz, this is hardly new advice. “I love science,” she says, “and my education at UMM influenced my enjoyment and desire to share my enthusiasm for science.”

Schmitz will impart details of her NASA voyage in a presentation at the Minnesota Science Teachers Association meeting in Duluth next March. “Every day we saw so many amazing things,” she effuses, and can’t wait to share her photos and stories with others. She is also available to speak to schools and groups about the STEM program and further opportunities for students and teachers, and can be reached via the [Willmar Public School District](#) directory.

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